

CLAIMS

1. A method of parallel execution of spreadsheet calculations including the steps of:
defining at least one custom function that passes arguments and a
5 function identifier to an evaluation process from a spreadsheet cell for parallel evaluation of said custom function;
constructing an evaluation table for storing interim and final results of said custom function;
returning said interim result to said spreadsheet cell during a first
10 evaluation cycle;
forcing reevaluation of said spreadsheet cell; and
returning said final result from said evaluation table to said spreadsheet cell.
2. The method of claim 1 wherein the evaluation process
15 distributes the calculation to one or more processors.
3. The method of step 1 wherein the interim result may have states of under evaluation, unevaluated or evaluated.
4. The method of step 1 wherein the interim result may have a
value of undefined when a state of the interim result is under
20 evaluated or unevaluated.
5. The method of claim 1 wherein the step of returning interim results to said spreadsheet cell displays an error in said spreadsheet cell when a value of said interim result is undefined.
6. The method of claim 1 wherein there are multiple custom
25 functions and the method is repeated until all custom functions are evaluated.
7. The method of claim 1 wherein the custom function is an arbitrary executable program which takes parameters from the spreadsheet cell and returns the final result to the spreadsheet cell.

8. The method of claim 1 wherein the step of forcing reevaluation of said spreadsheet cell uses a technique selected from built-in automatic re-evaluation, command complete re-evaluation, or command partial re-evaluation.

- 5 9. A parallel execution apparatus for spreadsheet calculations comprising:
- means for storing and processing a spreadsheet of multiple spreadsheet cells, at least one said cell containing a custom function;
 - means for evaluating said custom function;
 - 10 means for storing interim and final results of the evaluation of said custom functions;
 - means for displaying said interim result during a first cycle and said final result during a later cycle; and
 - timing means for determining said first and said later cycle.
- 15 10. A computer of the form having one or more processors, timing means associated with said processors, memory means for storing results of calculations, and display means, when programmed to perform a parallel execution process including the steps of:
- defining at least one custom function that passes arguments and a
 - 20 function identifier to an evaluation process from a spreadsheet cell for parallel evaluation of said custom function;
 - constructing an evaluation table in said memory means for storing interim and final results of said custom function;
 - returning said interim result to said spreadsheet cell during a first
 - 25 evaluation cycle controlled by said timing means;
 - forcing reevaluation of said spreadsheet cell; and
 - returning said final result from said evaluation table to said spreadsheet cell for display on said display means.